

**RULE 4606 -- WOOD PRODUCTS COATING OPERATIONS**

*(Adopted December 19, 1991; Amended May 21, 1992; Amended December 17, 1992; Amended June 20, 1996; Amended December 19, 1996; Amended December 17, 1998; Amended December 20, 2001)*

1.0 Purpose

The purpose of this rule is to limit the emissions of volatile organic compounds (VOCs) from wood products coating operations, and from the organic solvent cleaning, and the storage and disposal of solvents and waste solvent materials associated with such coating operations. The rule also provides the administrative requirements for recording and measuring emissions.

2.0 Applicability

The provisions of this rule shall apply to the application of coatings to wood products, including furniture, cabinets, and custom replica furniture. The rule shall also apply to the organic solvent cleaning, and the storage and disposal of all solvents and waste solvent materials associated with such coating operations.

3.0 Definitions

- 3.1 Aerosol Product: a hand-held, non-refillable container that expels a pressurized solvent-containing product by means of a propellant-induced force.
- 3.2 Aerosol-Spray Coating: a coating which is sold in a hand-held, pressurized, non-refillable container of 16 ounces or less and which is expelled from the container in a finely divided spray when a valve on the container is depressed.
- 3.3 Application Equipment: a device, including, but not limited to, a spray gun, brush, and roller, used to apply adhesives, coatings, or inks.
- 3.4 Binder: non-volatile polymeric organic material (resin) in coatings which binds the pigment and additive particles together to form a surface film in coating applications.
- 3.5 Clear Topcoat: the final coating which contains binders, but not opaque pigments, and is specifically formulated to form a transparent or translucent solid protective film.
- 3.6 Coating: a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, and stains.
- 3.7 Composite Partial Pressure: the sum of the partial pressures of the VOC compounds in a solvent. The VOC composite partial pressure is calculated as follows:

$$PP_c = \frac{\sum_{i=1}^n \frac{(W_i)(VP_i)}{MW_i}}{\frac{W_w}{MW_w} + \sum_{e=1}^k \frac{W_e}{MW_e} + \sum_{i=1}^n \frac{W_i}{MW_i}}$$

Where:

- $W_i$  = Weight of the “i”th VOC compound, in grams
- $W_w$  = Weight of water, in grams
- $W_e$  = Weight of exempt compound, in grams
- $MW_i$  = Molecular weight of the “i”th VOC compound, in grams per gram-mole
- $MW_w$  = Molecular weight of water, in grams per gram-mole
- $MW_e$  = Molecular weight of the “e”th exempt compound, in grams per gram-mole
- $PP_c$  = VOC composite partial pressure at 20°C (68°F), in mm Hg
- $VP_i$  = Vapor pressure of the “i”th VOC compound at 20°C (68°F), in mm Hg

- 3.8 Crackle Lacquer: a clear or pigmented topcoat intended to dry to produce a cracked or crazed appearance.
- 3.9 Cured Adhesive, Cured Coating, or Cured Ink: an adhesive, coating, or ink that is dry to the touch.
- 3.10 Custom Replica Furniture: furniture individually produced for a specific client using methods of construction including materials, joinery, and finishes authentic to the period and in keeping with the style of furniture.
- 3.11 Degreaser: a tank, tray, drum or other container in which objects to be cleaned are exposed to a solvent or solvent vapor in order to remove contaminants. The objects to be cleaned include, but are not limited to, parts, products, tools, machinery, and equipment. An enclosed spray application equipment cleaning system is not a degreaser.
- 3.12 Detailing or Touch-up Gun: small air spray equipment that is operated at no greater than five (5) cfm air flow and no greater than 50 psig of air atomizing pressure and is used to repair or touch-up portions of wood products. Detailing and touch-up guns include air brushes.
- 3.13 Dip Coat: to dip an object into a vat of coating material and drain off any excess coating.
- 3.14 Dissolver: an organic solvent that is added to an adhesive, coating, or ink in order to melt or to liquefy solid particles.
- 3.15 Electrostatic Application: method of spray application of coatings where an electrostatic potential is created between the part to be coated and the paint particles.

- 3.16 Exempt Compound: an organic compound not classified as a volatile organic compound (VOC), as listed in the definition of volatile organic compound in Rule 1020 (Definitions).
- 3.17 Faux Finish: a finish intended to simulate a surface other than wood, including, but not limited to, stone, sand, slate, marble, metal, metal flake, or leather.
- 3.18 Filler: a material whose primary function is to fill voids.
- 3.19 Flow Coating: a coating application system where paint flows over the part and the excess coating drains into a collection system.
- 3.20 Grams of VOC per Liter of Coating, Excluding Water and Exempt Compounds: the weight of VOC per combined volume of VOC and coating solids, and can be calculated by the following equation:

$$\begin{array}{l} \text{Grams of VOC per Liter of} \\ \text{Coating, Excluding} \\ \text{Water and Exempt Compounds} \end{array} = \frac{W_s - W_w - W_{ec}}{V_m - V_w - V_{ec}}$$

Where:

- $W_s$  = weight of volatile compounds, in grams  
 $W_w$  = weight of water, in grams  
 $W_{ec}$  = weight of exempt compounds, in grams  
 $V_m$  = volume of material, in liters  
 $V_w$  = volume of water, in liters  
 $V_{ec}$  = volume of exempt compounds, in liters

- 3.21 Grams of VOC per liter of Material: the weight of VOC per volume of material, and can be calculated by the following equation:

$$\text{Grams of VOC per Liter of Material} = \frac{W_s - W_w - W_{ec}}{V_m}$$

Where:

- $W_s$  = weight of volatile compounds, in grams  
 $W_w$  = weight of water, in grams  
 $W_{ec}$  = weight of exempt compounds, in grams  
 $V_m$  = volume of material, in liters

- 3.22 High-Solids Stain: a stain containing more than one (1) pound of solids per gallon of material, and can include wiping stains, glazes, and opaque stains. High-solids stains are formulated to enhance wood grain and change wood color, but not to conceal surface grain.
- 3.23 High-Volume, Low-Pressure (HVL) Spray Equipment: equipment used to apply materials by means of a spray gun which is designed and intended to be operated, and which is operated, between 0.1 and 10.0 psig of air atomizing pressure.
- 3.24 Imitation Wood Grain: a hand applied finish that simulates the appearance of a specific natural wood grain.

- 3.25 Ink: a fluid that contains dyes and/or colorants and is used to make markings but not to protect surfaces.
- 3.26 Leaf Finish: a finish used in conjunction with metal leaf or foil.
- 3.27 Liquid Leak: a visible solvent leak from a container at a rate of more than three drops per minute, or a visible liquid mist.
- 3.28 Low-Solids Stain: a stain containing one (1) pound or less, of solids per gallon of material, and can include semi-transparent stains, toners, and wash coats. Low-solids stains are formulated to enhance wood grain and change wood color, but not to conceal surface grain.
- 3.29 Maintenance Cleaning: the cleaning of tools, forms, molds, jigs, machinery, and equipment, and the cleaning of work areas where maintenance or manufacturing occurs.
- 3.30 Manufacturing Process: the process of making goods or articles by hand or by machine.
- 3.31 Mold-Seal Coating: the initial coating applied to a new mold or repaired mold to provide a smooth surface which, when coated with a mold release coating, prevents products from sticking to the mold.
- 3.32 Multi-Colored Coating: a coating which exhibits more than one (1) color when applied and which is packaged in a single container and applied in a single coat.
- 3.33 Non-Absorbent Container: a container made of non-porous material that does not allow the migration of solvents through it.
- 3.34 Non-Atomized Solvent Flow: solvents in the form of a liquid stream without the introduction of pressurized air or any propellant.
- 3.35 Non-Leaking Container: a container without liquid leak.
- 3.36 Organic Solvent: the same as "Solvent."
- 3.37 Organic Solvent Cleaning: an activity, or operation, or process, (including surface preparation, cleanup, or wipe cleaning), performed outside of a degreaser, that uses organic solvent to remove uncured adhesives, uncured coatings, uncured inks or other contaminants, including, but not limited to, dirt, soil, oil, lubricants, coolants, moisture, fingerprints, and grease, from parts, products, tools, machinery, application equipment and general work areas. Cleaning spray equipment used for the application of coatings, adhesives, or ink, is also considered to be organic solvent cleaning.
- 3.38 Pigmented Coating: an opaque coating which contains binders and colored pigments and is formulated to hide the wood surface, either as an undercoat or topcoat.

- 3.39 Propellant: any gas, including air, in a pressure container for expelling the contents when the pressure is released.
- 3.40 Repair: recoating portions of previously coated product to cover mechanical damage to the coating following normal painting operations.
- 3.41 Repair Cleaning: a solvent cleaning operation or activity carried out during a repair process.
- 3.42 Repair Process: the process of returning a damaged object or an object not operating properly to good condition.
- 3.43 Roll Coater: a series of mechanical rollers that forms a thin coating film on the surface of the rollers. The coating is applied to a substrate by moving the substrate underneath the rollers.
- 3.44 Sanding Sealer: a coating containing binders, which seals the wood prior to application of the subsequent coatings.
- 3.45 Simulated Wood Material: any material, such as plastic, glass, metal, etc., that is made to give a wood-like appearance or is processed like a wood product.
- 3.46 Solvent: any liquid containing a volatile organic compound or combination of volatile organic compounds, which is used as a diluent, thinner, dissolver, viscosity reducer, cleaning agent, or for other similar uses. These liquids are principally derived from petroleum and include petroleum distillates, chlorinated hydrocarbons, chlorofluorocarbons, ketones, and alcohols. Solutions, emulsions, and dispersions of water and soap, or water and detergent, that contain 50 grams of VOCs per liter or less, as used, are not considered to be organic solvents.
- 3.47 Solvent Flushing: the use of a solvent to remove uncured adhesives, uncured inks, uncured coatings, or contaminants from the internal surfaces and passages of equipment by flushing solvent, by a non-atomized solvent flow, through the equipment.
- 3.48 Stationary Source: defined in Rule 2201 (New and Modified Stationary Source Review Rule).
- 3.49 Strippable Booth Coating: a coating that is applied to a booth wall to provide a protective film to receive overspray during finishing operations and that is subsequently peeled off and disposed. Strippable booth coatings are intended to reduce or eliminate the need to use organic solvents to clean booth walls.
- 3.50 Stripper: a liquid used to remove cured coatings, cured inks, and/or cured adhesives.
- 3.51 Surface Preparation: the removal of contaminants from a surface prior to the application of coatings, inks, or adhesives or before proceeding to the next step of a manufacturing process.

- 3.52 Thinner: a solvent that is added to an adhesive, coating, or ink to make it more fluid.
- 3.53 Toner: a wash coat which contains binders and dyes or pigments to add tint to a coated surface.
- 3.54 Touch-up: that portion of the coating operation which is incidental to the main coating process but necessary to cover minor imperfections or to achieve coverage as required.
- 3.55 Viscosity Reducer: an organic solvent which is added to an adhesive, coating or ink to make it more fluid.
- 3.56 Volatile Organic Compound (VOC): defined in Rule 1020 (Definitions).
- 3.57 Wash Coat: a coating, containing binders, which penetrates into and seals wood, prevents undesired staining, and seals in wood pitch. Wash coats with greater than one (1) pound of solids per gallon of coating shall be considered sanding sealers.
- 3.58 Waste Solvent Material: any solvent which may contain dirt, oil, metal particles, sludge, and/or waste products, or wiping material containing VOCs including, but not limited to, paper, cloth, sponge, rag, or cotton swab used in organic solvent cleaning.
- 3.59 Wipe Cleaning: a solvent cleaning activity performed by hand rubbing an absorbent material such as a rag, paper, sponge, brush, or cotton swab containing solvent.
- 3.60 Wood Products: objects such as cabinets (kitchen, bath and vanity), tables, chairs, beds, sofas, shutters, doors, trim, containers, tools, ladders, art objects, and any other objects made of solid wood and/or wood composition and/or of simulated wood material used in combination with solid wood or wood composition.
- 3.61 Wood Product Coating Operation: a stationary source that performs a combination of coating application steps which may include the use of spray guns, flash-off areas, spray booths, ovens, conveyors, touch-up areas, and/or other equipment operated for the purpose of applying coatings to wood products.

#### 4.0 Exemptions

- 4.1 The provisions of the rule shall not apply to:
  - 4.1.1 Aerosol-spray coatings for touch up and repair.
  - 4.1.2 Wood products coating operations that use a total of less than 20 gallons of coating per year in all wood products coating operations in a stationary source.
  - 4.1.3 The application of coatings by template in order to add designs, letters, or numbers to wood products.

- 4.1.4 The application of coatings to wooden musical instruments.
  - 4.1.5 Residential noncommercial operations.
- 4.2 Architectural Coatings: The provisions of this rule shall not apply to the application of coatings to stationary structures and their appurtenances subject to the provisions of Rule 4601 (Architectural Coatings).
- 4.3 Refinishing, Replacement, and Custom Replica Furniture Operations: The provisions of Sections 5.1, 5.2, and 5.4 shall not apply to any refinishing operation necessary for preservation, for returning the wood product to original condition, for replacing missing furniture to complete a matching set, or for producing custom replica furniture, provided records are maintained as specified in Section 6.1.2.
- 4.4 Specific Finishes: The provisions of Sections 5.1, 5.2, and 5.4 shall not apply to coatings used to produce the following finishes, provided records are maintained as specified in Section 6.1.1:
  - 4.4.1 Crackle lacquers.
  - 4.4.2 Faux finishes.
  - 4.4.3 Imitation wood grain.
  - 4.4.4 Leaf Finishes.
- 4.5 For existing stationary sources, if an incineration device is added or modified for the sole purpose of complying with the requirements of this rule, such a device shall be exempt from the Best Available Control Technology and the Offset requirements of Rule 2201 (New and Modified Stationary Source Review Rule) provided that:
  - 4.5.1 The proposed project will not result in an increase in capacity utilization of the unit being controlled.
  - 4.5.2 The operator demonstrates to the satisfaction of the APCO that the proposed project is environmentally beneficial and will not cause or contribute to any violation of a national ambient air quality standard (NAAQS), prevention of significant deterioration (PSD) increment, or air quality related value (AQRV) in a class I area.
- 5.0 Requirements
  - 5.1 Limits: A person or operator shall not apply any coating to a wood product which has a VOC content, as applied, which exceeds the applicable limit specified below:

Table 1 VOC LIMITS  
Grams of VOC per Liter of Coating, Excluding Water and Exempt Compounds

Coating Category	Effective 12/19/96		Effective 7/1/2005	
	g/l	lb/gal	g/l	lb/gal
Clear Topcoat	550	4.6	275	2.3
Filler	500	4.2	275	2.3
High-Solids Stain	700	5.8	240	2.0
Ink	500	4.2	500	4.2
Mold-Seal Coating	750	6.3	750	6.3
Multi-Colored Coating	275	2.3	275	2.3
Pigmented Coating	550	4.6	275	2.3
Sanding Sealer	550	4.6	275	2.3

Table 2 VOC LIMITS Grams of VOC per Liter of Material

Coating Category	Effective 12/19/96		Effective 7/1/2005	
	g/l	lb/gal	g/l	lb/gal
Low-Solids Stain	480	4.0	120	1.0
Stripper	350	2.9	350	2.9

5.2 In lieu of complying with the requirements in Section 5.1, an owner or operator may operate a VOC emission collection and control system that controls the emissions from the source operation and that meets the requirements of Section 5.3.

### 5.3 Control System Requirements

The air pollution control equipment shall be operated with an overall capture and control efficiency of at least 85 percent on a mass basis as determined in accordance with Section 6.6. The control equipment shall be under District permit. In no case shall compliance through the use of this section result in VOC emissions in excess of the VOC emissions which would result from compliance with Section 5.1.

5.3.1 The minimum required control efficiency of an emission control system at which an equivalent or greater level of VOC reduction will be achieved shall be calculated by using the following equation:



$$CE = \left[ 1 - \left( \frac{VOC_{LWc}}{VOC_{LWn,Max}} \times \frac{1 - (VOC_{LWn,Max} / D_{n,Max})}{1 - (VOC_{LWc} / D_c)} \right) \right] \times 100$$

Where:

CE	=	Control Efficiency, percent
VOC <sub>LWc</sub>	=	VOC Limit, less water and less exempt compounds
VOC <sub>LWn,Max</sub>	=	Maximum VOC content of noncompliant coating used in conjunction with a control device, less water and less exempt compounds
D <sub>n,Max</sub>	=	Density of solvent, reducer, or thinner contained in the noncompliant coating, containing the maximum VOC content of the multi-component coating
D <sub>c</sub>	=	Density of corresponding solvent, reducer, or thinner used in the compliant coating system.

#### 5.4 Application Equipment Requirements

A person or operator shall not apply coatings to wood products subject to the provisions of this rule unless the coating is applied with properly operating equipment, according to proper operating procedures, and by the use of one of the following methods:

5.4.1 Electrostatic application;

5.4.2 High-Volume, Low-Pressure (HVLP) spray,

5.4.2.1 High-Volume, Low-Pressure (HVLP) spray equipment shall be operated in accordance with the manufacturer's recommendations.

5.4.2.2 For HVLP spray guns manufactured prior to January 1, 1996, the end user shall demonstrate that the gun meets HVLP spray equipment standards. Satisfactory proof will be either in the form of manufacturer's published technical material or by a demonstration using a certified air pressure tip gauge, measuring the air atomizing pressure dynamically at the center of the air cap and at the air horns.

5.4.2.3 A person shall not sell or offer for sale for use within the District any HVLP spray gun without a permanent marking denoting the maximum inlet air pressure in psig at which the gun will operate within the parameters specified in section 3.0.

5.4.2.4 Sections 5.4.2.1, 5.4.2.2 and 5.4.2.3 shall be effective on and after November 15, 2002;

- 5.4.3 Hand roller;
- 5.4.4 Flow coat;
- 5.4.5 Roll coater;
- 5.4.6 Dip coat;
- 5.4.7 Paint brush;
- 5.4.8 Detailing or touch-up guns; or
- 5.4.9 Such other coating application methods which are demonstrated to the APCO to be capable of achieving at least 65 percent transfer efficiency as determined in accordance with Section 6.6. Prior written approval from the APCO shall be obtained for each alternative method used.

## 5.5 Evaporative Loss Minimization

Section 5.5 shall remain in effect through November 14, 2002. A person or operator shall:

- 5.5.1 Only use solvents with a VOC content of less than 200 grams of VOC per liter of material (1.67 lbs/gal) for cleanup and surface preparation, excluding cleaning of coating application equipment;
- 5.5.2 Use closed containers for the storage and/or disposal of solvent-laden cloth or paper. Containers shall be nonabsorbent and shall remain closed at all times except when depositing or removing the solvent-laden cloth and paper;
- 5.5.3 Store fresh or spent solvents in closed containers;
- 5.5.4 Keep containers of stripper, coating, adhesive, or catalyst closed when not in use; and
- 5.5.5 Not use VOC-containing materials for the cleanup of spray equipment unless an enclosed system or equipment proven to be equally effective is used for cleaning as demonstrated, in accordance with Section 6.6. An enclosed system must totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing, and draining procedures. Solvents used for cleanup of coating application equipment shall not exceed a VOC content of 950 g/l (7.9 lb/gal) and a VOC composite vapor pressure of 35 mm Hg at a temperature of 68°F (20°C).
- 5.5.6 Limit VOC emissions from cleaning operations when using a strippable booth coating. A strippable booth coating shall not exceed a VOC content of 450 g/l (3.8 lb/gal) as applied, excluding water and exempt compounds.

## 5.6 Organic Solvent Cleaning, Storage, and Disposal Requirements

- 5.6.1 Section 5.6 shall be effective on and after November 15, 2002, unless otherwise indicated.
- 5.6.2 From November 15, 2002, through November 14, 2003, an owner or operator shall not use organic solvents for cleaning operations that exceed the VOC content limits and composite partial pressure limits specified as

being “Effective November 15, 2002 through November 14, 2003” in Table 3.

- 5.6.3 On and after November 15, 2003, an owner or operator shall not use organic solvents for cleaning operations that exceed the VOC content limits specified as being “Effective November 15, 2003” in Table 3. On and after November 15, 2003, the composite partial pressure of solvents used for cleaning operations will not be regulated.

Table 3 – VOC Limits for Organic Solvents Used in Cleaning Operations

Type of Solvent Cleaning Operation	Effective November 15, 2002 through November 14, 2003		Effective November 15, 2003
	VOC Content Limit Grams of VOC/liter of material (lb/gal)	VOC Composite Partial Pressure Limit, mm Hg at 20°C (68°F)	VOC Content Limit Grams of VOC/liter of material (lb/gal)
A. Product Cleaning During Manufacturing Process or Surface Preparation for Coating Application	70 (0.58)	no limit	50 (0.42)
B. Repair and Maintenance Cleaning	50 (0.42)	no limit	50 (0.42)
C. Cleaning of Coating Application Equipment	950 (7.9)	35	550 (4.6)

- 5.6.4 The provisions of Table 3 shall not apply to the following applications:

5.6.4.1 Cleaning in laboratory tests and analyses, or bench scale or research and development projects.

5.6.4.2 Until June 30, 2005, the cleaning of ultraviolet lamps used for the curing of ultraviolet ink or coatings.

- 5.6.5 The provisions of Sections 5.6.6 through 5.6.8 of this rule shall only apply to an owner or operator that uses any solvent containing more than 50 grams of VOC per liter of material for organic solvent cleaning.

- 5.6.6 Cleaning activities that use solvents shall be performed by one or more of the following methods:

5.6.6.1 Wipe cleaning; or

- 5.6.6.2 Application of solvent from hand-held spray bottles from which solvents are dispensed without a propellant-induced force; or
  - 5.6.6.3 Non-atomized solvent flow method in which the cleaning solvent is collected in a container or a collection system which is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container; or
  - 5.6.6.4 Solvent flushing method in which the cleaning solvent is discharged into a container that is closed except for solvent collection openings and, if necessary, openings to avoid excessive pressure build-up inside the container. The discharged solvent from the equipment must be collected into containers without atomizing into the open air. The solvent may be flushed through the system by air or hydraulic pressure, or by pumping.
- 5.6.7 Solvent shall not be atomized into the open air unless it is vented to a VOC emission control system that complies with Section 5.3. This provision shall not apply to the cleaning of nozzle tips of automated spray equipment systems, except for robotic systems, and cleaning with spray bottles or containers described in Section 5.6.6.2.
- 5.6.8 An owner or operator shall not use VOC-containing materials to clean spray equipment used for the application of coatings, adhesives, or ink, unless an enclosed system or equipment that is proven to be equally effective at controlling emissions is used for cleaning. If an enclosed system is used, it must totally enclose spray guns, cups, nozzles, bowls, and other parts during washing, rinsing and draining procedures, and it must be used according to the manufacturer's recommendations and must be closed when not in use.
- 5.6.9 An owner or operator shall not use a strippable booth coating with a VOC content in excess of 450 g/l (3.8 lb/gal) as applied, excluding water and exempt compounds.
- 5.6.10 An owner or operator shall store or dispose of fresh or spent solvents, waste solvent cleaning materials such as cloth, paper, etc., coatings, adhesives, catalysts, and thinners in closed, non-absorbent and non-leaking containers. The containers shall remain closed at all times except when depositing or removing the contents of the containers or when the container is empty.

## 5.7 Prohibition of Specification

No person shall require for use or specify the application of any coating subject to the provisions of this rule if such use or application would result in a violation of the provisions of this rule. This prohibition shall apply to all written or oral contracts under the terms of which any coating which is subject to the provisions of this rule is to be applied to any wood product at any physical location within the District.

## 6.0 Administrative Requirements

Effective on and after November 15, 2002, the records kept in compliance with Sections 6.1, 6.2, and 6.3 shall be retained on site for a minimum of five (5) years and made available for inspection by the APCO upon request.

### 6.1 Recordkeeping Requirements for Coatings

Effective until November 14, 2002, all records required to be maintained under this section shall be retained on site for a period of at least 24 months and shall be made available for inspection by the APCO.

6.1.1 Any person subject to Sections 5.1, 5.2, 5.3, or 5.4 and users of coatings exempt by Section 4.1.2, or 4.4, shall comply with the following requirements:

6.1.1.1 Maintain a current list of coatings and solvents in use which provides all of the data necessary to evaluate compliance, including the following information, as applicable:

- 6.1.1.1.1 identify coatings, catalysts, reducers, and solvents.
- 6.1.1.1.2 manufacturer's recommended mix ratio of components.
- 6.1.1.1.3 VOC content of coatings, as applied.
- 6.1.1.1.4 VOC content of solvents.

6.1.1.2 Maintain records on a daily basis that provide the following information, as applicable:

- 6.1.1.2.1 coating and mix ratio of components in the coating used.
- 6.1.1.2.2 quantity of each coating applied.
- 6.1.1.2.3 identification of coating category.
- 6.1.1.2.4 type and amount of solvent used for cleanup and surface preparation.

6.1.1.3 In lieu of maintaining records on a daily basis, stationary sources which are exempt by Section 4.1.2 may maintain such records on an extended basis, not to exceed monthly.

6.1.2 Refinishing, Replacement and Custom Replica Furniture Operations: Any person claiming exemption under Section 4.3 shall comply with the following requirements:

6.1.2.1 Maintain a current list of coatings in use which provides the following information:

- 6.1.2.1.1 coating, catalyst, and reducer.
- 6.1.2.1.2 manufacturer's recommended mix ratio of components.
- 6.1.2.1.3 VOC content of each component.

6.1.2.2 Maintain records that provide the following information such that daily usage can be determined:

- 6.1.2.2.1 amount of coating, catalyst, and reducer used.
- 6.1.2.2.2 type and amount of solvent used for cleanup and surface preparation.
- 6.1.2.2.3 type and amount of stripper used.
- 6.1.2.2.4 each type of wood product coated. Wood product types are as follows:
  - 6.1.2.2.4.1 refinishing.
  - 6.1.2.2.4.2 replacement.
  - 6.1.2.2.4.3 custom replica furniture.

## 6.2 Recordkeeping Requirements for Cleaning Solvents

Effective on and after November 15, 2002, an owner or operator who uses solvents subject to Section 5.6 of this rule shall maintain the following records, and have available at all times, a current list of solvents in use which provides all of the data necessary to evaluate compliance, including the following information as applicable:

- 6.2.1 Keep a copy of the manufacturer's product data sheet or material safety data sheet of the solvents used for organic solvent cleaning activities.
- 6.2.2 Maintain a current list of solvents that are being used for organic solvent cleaning activities. The list shall include the following information:
  - 6.2.2.1 The name of the solvent and its manufacturer's name.
  - 6.2.2.2 The VOC content of the solvent expressed in grams/liter or lb/gallon.
  - 6.2.2.3 When the solvent is a mixture of different materials that are blended by the operator, the mix ratio of the batch would be recorded in order to determine compliance with the specified limits of VOC content and/or VOC composite partial pressure, as applied.
  - 6.2.2.4 Through November 14, 2003, the composite partial pressure of the solvent expressed in mm Hg at 20°C (68°F).
  - 6.2.2.5 The type of cleaning activity for each solvent that is being used in accordance with the applicable cleaning category specified in Table 3 of this rule.

## 6.3 Recordkeeping for Emission Control Systems

Any person using an emission control system as a means of complying with the provisions in Section 5.3 shall maintain daily records of key system operating parameters which will demonstrate continuous operation and compliance of the emission control system during periods of emission producing activities. Key system operating parameters are those necessary to ensure compliance with VOC limits. The parameters may include, but are not limited to, temperatures, pressures, and flow rates.

#### 6.4 Labeling Requirements

6.4.1 VOC Content: Each container or accompanying data sheet of any coating subject to this rule and manufactured after December 19, 1992, shall display the maximum VOC content of the coating, as applied after any thinning as recommended by the manufacturer. VOC content shall be displayed as grams of VOC per liter (or pounds of VOC per gallon) of coating, less water and exempt compounds. VOC content displayed may be calculated using product formulation data, or may be determined using the test method in Section 6.6.

6.4.2 Thinning Recommendations: Each container or accompanying data sheet of any coating subject to this rule and manufactured after December 19, 1992, shall display the manufacturer's recommendation regarding thinning of the coating. This requirement shall not apply to the thinning of coatings with water.

#### 6.5 Compliance Statement Requirements

Effective on and after November 15, 2002, manufacturers of any solvents subject to this rule shall indicate on the solvent container, or on a separate product data sheet or material safety data sheet, the name of the solvent, manufacturer's name, the VOC content, density, and VOC composite partial vapor pressure, as defined in the rule, of the solvent, as supplied. The VOC content and VOC composite vapor pressure shall be expressed in units of gm/liter or lb/gallon and mm Hg at 20°C (68°F), respectively.

#### 6.6 Test Methods

6.6.1 Analysis of Samples: Samples of VOC as specified in this rule shall be analyzed by EPA Method 24 and exempt halogenated compounds shall be analyzed by ARB Method 432.

6.6.2 Determination of Emissions: Emissions of VOC shall be measured by EPA Method 25, 25a, or 25b, and exempt halogenated compounds shall be analyzed by ARB Method 422.

6.6.3 Determination of emissions of VOC from spray gun cleaning systems shall be made using South Coast Air Quality Management District "General Test Method for Determining Solvent Losses from Spray Gun Cleaning Systems," October 3, 1989.

6.6.4 The transfer efficiency of alternative coating application methods shall be determined in accordance with the SCAQMD method "Spray Equipment Transfer Efficiency Test Procedure for Equipment User," May 24, 1989.

6.6.5 Determination of Control Efficiency of VOC Emission Control Devices

6.6.5.1 The capture efficiency of each collection device shall be demonstrated according to the EPA's document "Guidelines for Determining Capture Efficiency," dated January 9, 1995. An equivalent alternate test method that has been approved by EPA, ARB, and the APCO may be used.

6.6.5.2 The emission control system efficiency of any air pollution control equipment shall be determined using EPA Methods 2, 2A, or 2D for measuring flow rates and EPA Methods 25, 25A, or 25B for measuring total gaseous organic concentrations at the inlet and outlet of the control device. EPA Test Method 18 or ARB Method 422 shall be used to determine the emissions of exempt compounds.

6.6.5.3 The overall capture and control efficiency shall be calculated by using the following equation:

$$CE_{\text{CAPTURE AND CONTROL}} \% = [ CE_{\text{CAPTURE}} \times CE_{\text{CONTROL}} ] / 100$$

Where:

$CE_{\text{CAPTURE AND CONTROL}}$  = Overall Capture and Control Efficiency, in percent

$CE_{\text{CAPTURE}}$  = Capture Efficiency of the collection device, in percent, as determined in Section 6.6.5.1

$CE_{\text{CONTROL}}$  = Control Efficiency of the control device, in percent, as determined in Section 6.6.5.2.

6.6.6 Determination of Vapor Pressure

The composite partial pressure of solvents shall be determined by:

6.6.6.1 Determining the identity and quantity of each compound in a blended organic solvent by using ASTM D2306, or SCAQMD Method 308 or by using ASTM E260 for organics and ASTM D3792 for water content, if applicable, or the manufacturer's product formulation data, and

6.6.6.2 By determining the vapor pressure of each pure VOC component by using ASTM D2879 or from publications such as Perry's Chemical Engineer's Handbook, CRC Handbook of Chemistry



and Physics, Lange's Handbook of Chemistry, or other District approved sources; and

- 6.6.6.3 By calculating the composite partial pressure of the solvent by using the formula for "Composite Partial Pressure" in Section 3.0. For the purpose of this calculation, the blended solvent shall be assumed to be an ideal solution where Raoult's Law applies. The partial pressures of each compound at 20° C (68° F) shall be used in the formula.

## 6.7 Multiple Test Methods

Effective on and after November 15, 2002, when more than one test method or set of test methods is specified for any testing, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of this rule.

## 6.8 Version of Test Methods

Effective on and after November 15, 2002, all ASTM test methods referenced in Section 6.0 are the most recently EPA-approved version that appears in the Code of Federal Regulations as Materials Approved for Incorporation by Reference.

## 7.0 Compliance Schedule

- 7.1 The owner/operator of a wood products coating application operation who becomes subject to the requirements of this rule through loss of exemption shall comply with the following increments of progress:
  - 7.1.1 Within six (6) months from the date that the exemption was lost, submit a complete application for an Authority to Construct or Permit to Operate, as applicable.
  - 7.1.2 Within 12 months from the date that the exemption was lost, be in full compliance with the requirements of this rule.